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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,191	08/08/2003	Jurgen Muller	P2001,0082	3966
24131	7590	11/25/2005	EXAMINER	
LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480			NGUYEN, PHILLIP	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/637,191

Applicant(s)

MULLER, JURGEN

Examiner

Phillip Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments see Response from Applicant, filed 10/20/2005, with respect to claims 1-12 have been fully considered and are persuasive. The Final Rejection of 8/18/2005 has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wasserbauer et al. ('673) or Ackley et al. ('596).

It is noted that the recent phone interview with applicant's undersigned concerning new prior art that discloses the claimed invention and the agreement has been made to add claim 9 to claim 1 in order to overcome that particular prior art (US 6542527). However, Examiner has found a several new references that disclose the claimed invention even if claim 9 was combined with claim 1. The following is a new Final Rejection.

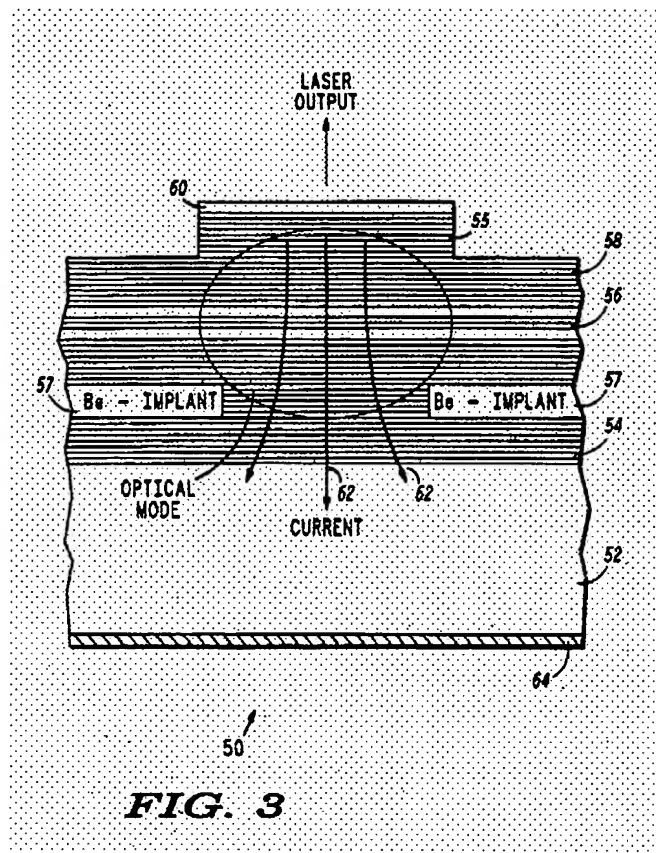
Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 8-9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ackley et al. ('596).



With respect to claims 1 and 9, Ackley discloses in Fig. 3 a semiconductor laser comprising a vertical resonator formed by reflectors (54 and 58); a photon-emitting active layer 56 disposed between said reflectors; at least one current diaphragm for laterally circumscribing current flowing through said photon-emitting a current flowing through said active layer (current aperture formed between the regions 57); and mode-selective regions 57 extending in a vertical direction within said vertical resonator and laterally delimit said vertical resonator, wherein the mode selective region being implantation regions (with Be).

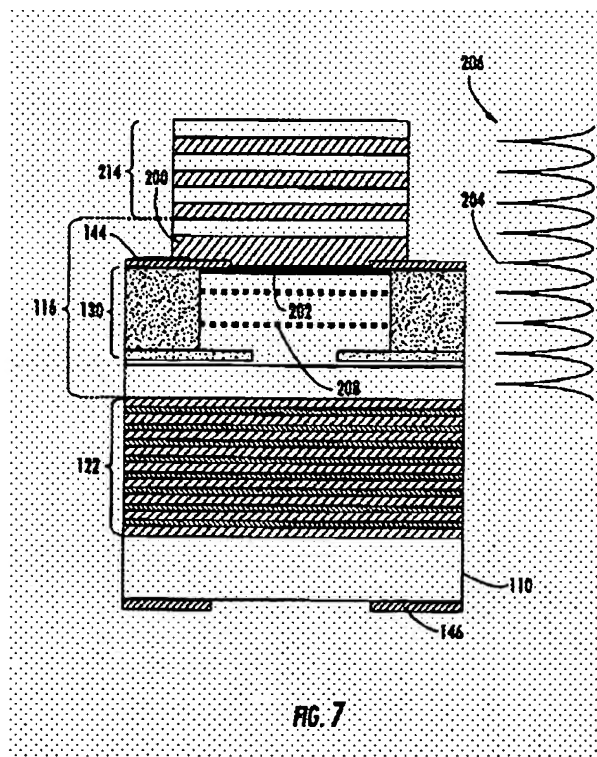
With respect to claim 2, Ackley discloses in Fig. 3 the top reflector 58 formed in a mesa 55.

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With respect to claim 8, Ackley discloses the mode-selective regions having an electrical conductivity less than that of said vertical resonator along a resonator axis. It is noted that the implantation region prevents the current therethrough then the electrical conductivity of the implantation region must be less than that of the mirrors (col. 1, lines 59-65 and col. 4, lines 21-25).

With respect to claim 11, Ackley discloses the current diaphragm being at least two current diaphragms (col. 4, lines 45-49).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.



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3. Claims 1, 4, 9-10, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Wasserbauer et al. ('673).

With respect to claims 1 and 9, Wasserbauer discloses in Fig. 1-3, 23 the claimed invention. In this rejection, Fig. 1 and 3 will be applied. Wasserbauer discloses a semiconductor laser comprising a vertical resonator formed by reflectors 14 and 18; a photon-emitting active layer 56, 58, and 60 disposed between said reflectors (shown in Fig. 3); at least one current diaphragm 26 for laterally circumscribing current flowing through said photon-emitting a current flowing through said active layer and mode-selective regions 24 extending in a vertical direction within said vertical resonator and laterally delimit said vertical resonator, wherein the mode selective region being implantation regions (col. 1, lines 65-67 and col. 5, lines 39-45). Fig. 23 clearly shows the active region being disposed between the mirrors 1114 and 1112.

With respect to claim 4, Wasserbauer discloses the current diaphragm being formed from an oxide (col. 5, lines 39-45).

With respect to claim 10, Wasserbauer discloses the vertical resonator having an edge area (the area on of the mirror layer 44 which is adjacent to the implantation region 24) the side of and said mode-selective regions extend in said edge area and a surrounding region of said edge area of said vertical resonator.

With respect to claim 12, Wasserbauer discloses the claimed invention. See Fig. 1-2 and 23.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ackley et al. ('596) in view of Schneider Jr. et al. ('627, hereinafter "Schneider"). Ackley discloses the claimed invention except for explicitly teaching the diameter of the mesa 55. Schneider discloses a semiconductor laser device (VCSEL) with a mesa which is a top portion of top mirror 40 having a diameter of between 8-40 microns. For the improvement of the laser, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to explicitly provide the mesa diameter of larger than 10 microns as taught by Schneider as applied to Ackley to have a big opening for light to emit from the laser.

6. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wasserbauer et al. ('414) in view of Hibbs-Brenner et al. ('722, hereinafter "Hibbs").

With respect to claims 5-6, Wasserbauer discloses the claimed invention except for explicitly teaching the diameter of the current aperture being larger than 4 microns. Hibbs discloses a semiconductor laser including a current aperture 20 with a diameter of 0.1-60 microns, especially between 2-5 microns. For the improvement of the laser, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide

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the current aperture as taught by Hibbs to Wasserbauer in order to keep the threshold current low to increase the laser reliability (col. 4, lines 32-39).

With respect to claim 7, Wasserbauer discloses the mode selective region defining an opening being larger than the current aperture (see Fig. 2-3, 5, 7, 9 and 12).

Communication Information

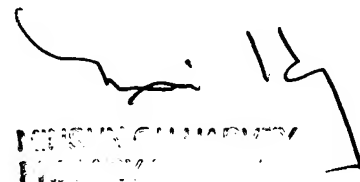
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SUPERVISOR